Simulation Study of the PHENIX Silicon Vertex Detector Upgrade Expected Performance

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The PHENIX experiment at RHIC is currently constructing a Silicon Veretx Detector Upgrade (VTX) in order to extend its physics capabilities.
VTX will consist of two inner layers of silicon pixel sensors, and two outer layers with silicon stripixel sensors of novel design.
Main goal of this detector is to provide excellent primary and secondary vertex reconstruction. This will enable precision measurement of heavy quark production by reconstructing secondary vertices of semileptonic and hadronic decays of B and D mesons, and reducing background from Dalitz decays and conversions. It will also improve momentum and mass resolution of the PHENIX detector. Standalone, VTX can provide jet measurements, and jet correlation studies in PHENIX.
In this poster we present simulation studies showing ability of the VTX upgrade to perform these tasks.